

# Claims

[c1] What is claimed is:

A communication system on the same RF frequency with several moving participants (20, 21, 22, 23, 24, 25) that are each equipped with a communication device (10) for exchanging information having a transmitter and receiver (1, 2) characterized by a method, for detecting free transmission periods (8) which control the transmission of the transmitter (1).

[c2] The communication system of Claim 1, characterized in that said information is positioning data.

[c3] The communication system of Claim 1 characterized in that said moving participants (20, 21, 22, 23, 24, and 25) are ships.

[c4] The communication system of Claim 1 characterized in that means for detecting transmission periods by a transmission detector (8) is that its input (15) is connected to the first output (16) of the receiver (2) and its output (14) is connected with the first input (13) of the transmitter (1).

- [c5] The communication system of Claim 4, characterized in that the transmission detector (8) scans, within a predictable window of time, for the appearance of transmissions initiated by other participants with the receiver (2) and releases the transmitter (1) for communicating navigational data if such transmissions do not appear.
- [c6] The communication system that, connected over the second input (11) of the transmitter (1), has a time basis (5) for generating a transmission frame according to Claim 1 characterized in that methods for synchronizing the time basis (5) of each moving participant (20, 21, 22, 23, 24 and 25) only depends on a minimum of one relevant participant within the receiving range.
- [c7] The communication system of Claim 6, characterized in that the time basis (5) has a steering input (43) which drives the transmission frame within a moveable time period and that the means for synchronizing the time basis (5) are provided by a synchronization unit (6) which has an output (40) connected to the steering input (43) of the time basis (5) and a second input (18) of the receiver (2) connected to the input (19) of the synchronization unit (6), so that a transmission signal is in direct timing relation to the transmission of one or more other participants.

- [c8] The communication system of Claim 7, characterized in that the transmitter and receiver (1, 2) of the Communication Unit (10) are driven by a TDMA (time division multiple access) method, where the transmission frame is divided in predictable numbers of transmitting and receiving windows of time.
- [c9] The communication system of Claim 6 characterized in that a third input (12) of the transmitted (1) of the Communication Unit (10) is connected to a positioning data unit (3) that indicates the navigation data and forwards this information to the transmitter (1) from which it will be broadcasted.
- [c10] The communication system of Claim 9, characterized in that the positioning data unit (3) is a electronic positioning fixing device (i.e.: GPS-Unit).
- [c11] The communication system according to Claim 1 characterized in that a third output (17) of the receiver (2) is connected to the positioning I/O unit (4), which could forward the navigation data of the other participants for further processing.
- [c12] The communication system according to Claim 1 characterized in that the synchronization unit (6) provides the means for weighting from the receiver (2) and received

transmissions with defined factors for correcting the synchronization error.

- [c13] The communication system of Claim 12, characterized in that the own transmission timing correction is a function of weighting different predetermined groups and numbers of participants in those groups.
- [c14] A communication system in the same frequency as in Claim 2 including; means to exchange information between moving participants, characterized in that the appearance of transmission of other moving participants will be supervised and in the absence of such transmission of own information will be transmitted.
- [c15] A communication system as in Claim 14, characterized in that the transmission signal will be sent within the transmission frame that is defined over the time basis and the sending signal of other participants could be received, within such a window of time and the possible transmission of other participants can be received and detected and in the absence of such receiving signals the window of time will be used for the own transmission.
- [c16] A communication system as in Claim 15, characterized in that navigational data will be sent as information.
- [c17] A communication system as in Claim 14 characterized in

that each participant will make use of its own transmission frame unsynchronized as long as there is no other transmission received from another participant within this predictable time frame.

- [c18] A communication system as in Claim 14 characterized in that each participant transmits periodically and the received signals of a minimum of one or more participants will be used for a possible adjustment of the synchronization of the transmission frame.
- [c19] A communication system as in Claim 15, characterized in that according to the transmission signal and possibly the content of the transmission of other participants a relation of the weighting factors to them could be done, and due to that the timing correction of the transmission frame for a particular participant could be calculated and established.
- [c20] A communication system as in Claim 19 characterized in that other participants are organized into defined groups according to similar criteria with the same weighting factor to be used to correct the transmission timing.
- [c21] A communication system as in Claim 15 characterized in that TDMA (time division multiple access) methods with a number of transmitting and receiving windows of time

could be used as transmission frame.